Knocking out leukemia stem cells

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A good report about bone marrow transplantation in progress comes from the National Hockey League, of all places. Mandi Schwartz, a Yale women's hockey player, was diagnosed with acute myeloid leukemia and is being treated at the Seattle Cancer Care Alliance.

In the name of full disclosure, that's the center that cured my mother's lymphoma, so let's just say I'm a fan.

NHL.com wrote a nice description of how bone marrow transplantation knocks out leukemia stem cells. Acute myeloid leukemia is a cancer that begins in the bone marrow stem cells - the cells that continuously produce new blood and immune cells throughout a person's life. A bone marrow transplant essentially replaces the cancerous leukemia stem cells with new ones from a donor, like an organ transplant but with bone marrow. The NHL writes:

"Engraftment, which was the next phase in her recovery, is needed in order for the transplanted stem cells to begin to grow in her bone marrow and manufacture new blood cells and immune cells... Complete recovery of a new immune system can take a year or longer depending on any complications as a result of the transplant.

Bone marrow transplants like this one are effective, but dangerous. The process of eliminating a person's diseased bone marrow leaves the person extremely weak and prone to infections. This danger is why several CIRM grantees are working on a less toxic way of killing off the diseased bone marrow stem cells (here's a list of our awards targeting blood cancers). Irving Weissman at Stanford University has found molecules on the surface of the stem cells underlying acute myelogenous leukemia. He has a CIRM disease team award to develop a chemotherapy that could destroy those cells in a way that's far less toxic than bone marrow transplant.

If that research is successful, future people like Schwartz may recover from acute myelogenous leukemia with fewer side effects. As someone who has seen a family member battle cancer, fewer side effects for an effective therapy is a winning combination.

A.A.

Tags: Cancer, Stanford University, leukemia, Weissman